



Applications are invited for a postgraduate research scholarship position in the project “Micro/Nanofibre Optical Sensors for Biomedical Applications”

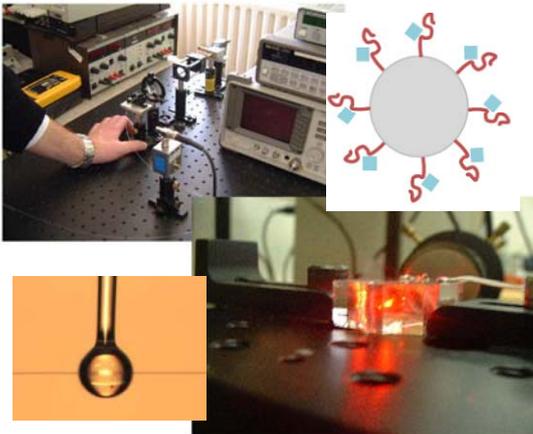
Project description

The increasing demand for rapid and reliable detection of certain biological molecules in life science research, drug discovery and medical applications has resulted in an increasing interest to biosensors and in particular to optical biosensors. Micro- and nanofibre (MNF) based optical sensors have a number of intrinsic advantages over traditional analytical instruments such as rapid sensing speed, real-time monitoring capability, small footprint, low cost, high sensitivity, selectivity and immunity to electromagnetic interference.

Based on theoretical modelling and experimental verification this project will exploit the application of optical MNFs for measuring the change of parameters in the surrounding environment or binding phenomena on the surface of the fibre for biomedical applications. A reliable theoretical model will be set up and the structural parameters of the MNF based sensors, including the type of the MNF resonator, radius of a microfibre or diameter of a microsphere and the length of the coupling region will be optimized for higher sensitivity, wider dynamic range, and lower detection limit. The proposed technique promises to be more sensitive in comparison with existing optical sensors. In addition the nanoscale size of the MNFs makes them suitable for practical applications that require very small quantities of samples.

Photonics Research Centre

The Photonics Research Centre is within the School of Electronic and Communications Engineering at the Dublin Institute of Technology. The Centre undertakes research in a number of areas of photonics, with a particular emphasis on optical sensing. It involves several Faculty members, post-docs and graduate students with a wide range of experience, a strong publication track record and is supported by well equipped facilities. Further information is available at www.prc.dit.ie



Scholarship details

For the successful candidate, the scholarship will provide a stipend of €16,000 per year plus all programme fees paid and €2,000 funding for expenses and travel to research conferences and colloquia paid annually, based upon successful completion of the annual assessment by the PhD student.

Academically strong candidates are sought who have a Masters Degree or a very good primary degree in Applied Physics or Electronic Engineering or a closely related discipline, with a minimum honours grade of 2-I or higher. Candidates should also have had demonstrated exposure to optoelectronics or optical fibre communications in their degree. For further details please contact the Principle Investigator (below)

Applications:

Please send an up-to-date CV by email to: **Dr. Yuliya Semenova**

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